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Issued November 8, 1889.

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LIST OF FUNGI, COLLECTED IN 1884 ALONG THE  
NORTHERN PACIFIC RAILROAD.

BY A. B. SEYMOUR.

THE fungi enumerated in this list were collected by the author  
in August and September, 1884, along the line of the Northern

Pacific Railroad. Beginning at St. Paul, Aug. 21, short stops and hurried collections were made at various points until Sept. 23rd. The dates and localities of collecting are as follows:

August 21, St. Paul, Minnesota,

“ 22, Brainerd and Detroit, Minnesota,

“ 23, Fargo, Dakota,

“ 25, Valley City, Dakota,

“ 26, Jamestown, “

“ 28, 29 and 30, Bismarck, Dakota.

September 2, Medora, Dakota,

“ 3, Miles City, Montana,

“ 4, Billings, “

“ 6, Livingston, “

“ 8, Bozeman, “

“ 11 and 12, Helena, Montana,

“ 15, Sand Point, Idaho, “

“ 17, Wallula, Washington,

“ 19, Thompson Falls, Montana,

“ 23, Minneapolis and Lake Minnetonka, Minnesota.

A few other localities are mentioned in the list, represented by specimens picked up at points where the train stopped. Species distributed in *exsiccati* from this collection are so noted.

For aid in the determinations, I am indebted to Drs. W. G. Farlow and P. Magnus and especially to the lamented Dr. Winter.

#### CHYTRIDIACEÆ.

*Synchytrium decipiens*, Farl., on *Amphicarpæa monoica*, plentiful; Bismarck, Dakota.

#### PERONOSPOREÆ.

*Peronospora Halstedii*, Farl., on *Rudbeckia laciniata*; Fargo and Valley City, Dak.

*Peronospora ribicola*, Schrt., Jahresbericht d. Schles. Gesellsch. 1883, p. 179; *Plasmopara ribicola*, Schrt. Krypt. Fl. Schles. Vol. III, p. 238, where it is described as follows: “Rasen fleckenweise, sehr locker, weiss. Conidienträger straff aufrecht, 2-4 mm. hoch, mit 3-5 aufrecht abstehenden graden Aesten, meist in eine Endspitze auslaufend; Aeste grade, die untern mit 3-5 graden Seitenästen; Endästchen grade, verschmälert, abgestutzt. Conidien kurz elliptisch, 15-20 $\mu$  lang, 11-13 $\mu$  breit, mit flacher Papille. Keimung

nicht beobachtet. Oosporen unbekannt. Auf Blätten von *Ribes rubrum*."

The Minnesota specimens show conidia  $11.7-17\mu$  by  $13-21\mu$ ; oospores smooth or obscurely roughened, nearly filling the oogonium and closely invested by its thin, fuliginous wall,  $25.5$  to  $35.7\mu$ . The papilla of the conidium is seen with difficulty and appears more like an inward thickening of the wall than as an external prominence. On leaves of *Ribes hirtellum*. Detroit, Minn.

*Peronospora parasitica*, (P.) Tul., on *Lepidium*; Jamestown, Dak.

*Peronospora Arthuri*, Farl., on *Oenothera biennis*; Sand Point, Idaho. Oospores  $15.6$  to  $39\mu$ .

Since this species was first published as occurring in Iowa and Minnesota, it has been reported from Illinois, Wisconsin, Missouri, Kansas and New York. To these localities may be added Nantasket Beach, Mass., where it was found by the author, June 23, 1885 and Grand Manan, Aug. 13, 1888, K. Miyabe.

*Peronospora Trifoliorum*, D By. On *Astragalus*; Bismarck, Dak., Livingston, Mont.

Exs.: Fungi Europæi 3576.

*Cystopus Bliti*, (Biv.) Lev. On *Amarantus retroflexus*; St. Paul and Brainerd, Minn., Jamestown, Dak.

#### ERYSIPHEÆ.

DETERMINED BY F. S. EARLE.

*Sphaerotheca Humili*, (DC.) Burrill., on *Viola*; Valley City, Dak.

*Sphaerotheca pannosa*, (Wallr.) Lev., on *Rosa*; Valley City, Dak.

*Sphaerotheca Mors-uvæ*, (S.) B. & C., on *Ribes floridum*; Fargo, Dak.

*Sphaerotheca Castagnei*, Lev., on *Erechtites hieracifolia* and *Nabalus* sp. Lake Minnetonka, Minn. *Hydrophyllum Virginicum*; Valley City, Dak.

*Erysiphe communis*, (Wallr.) Schl., on *Ranunculus Cymbalaria*; Livingston, Mont. *Lathyrus*?; Lake Minnetonka, Minn. *Oenothera biennis*; Kootenai, Idaho. *Oenothera* sp.; Bismarck, Dak.

*Erysiphe Cichoracearum*, DC., on *Aster*, Valley City, Dak. *Solidago* and *Cnicus*; Bozeman, Mont. *Helianthus*; Fargo, Dak.

*Erysiphe Linkii*, Lev., on *Artemisia dracunculoides*; Bozeman, Mont. *Artemisia* sp.; Valley City, Dak. Also on *A. Ludoviciana*; Helena, Mont., Sept., Rev. F. D. Kelsey.

*Erysiphe Galeopsidis*, DC., on *Stachys palustris*; Detroit, Minn.  
*Uncinula parvula*, B. & C., on *Celtis*; Wallula, Washington.  
*Uncinula Salicis*, (DC.) Wint., on *Salix*; Lake Minnetonka, Minn., Jamestown and Bismarck, Dak., Bozeman, Mont.

*Phyllactinia suffulta*, (Reb.) Sacc., on *Betula*?; Lake Minnetonka, Minn. Also on *Cornus stolonifera*; Helena, Mont., Sept. 1888, Rev. F. D. Kelsey. Remarkable for occurring on both sides of the leaf.

*Podosphæra Oxyacanthæ*, (DC.) D By., on *Prunus* (cult.?) ; Livingston, Mont. *Spiræa* sp., Sand Point, Idaho. Also on *Prunus Virginiana*; Helena, Mont., Sept., 1888, Rev. F. D. Kelsey.

*Microsphæra Alni*, (DC.) Wint., on *Ceanothus Americanus*; Brainerd, Minn. *Syringa vulgaris* and *Betula*; Lake Minnetonka, Minn.

*Microsphæra diffusa*, C. & P., on *Lespedeza capitata*; Brainerd, Minn.

*Microsphæra Ravenelii*, B. on *Lathyrus*?; Detroit, Minn.

*Microsphæra Symphoricarpi*, Howe, on *Symphoricarpus*; Valley City, Dak., Bozeman, Mont., Sand Point, Idaho, Cheney, Washington.

#### UREDINEÆ.

*Uromyces Terebinthi*, (DC.) Wint., on *Rhus Toxicodendron*; Valley City, Dak.

*Uromyces Lupini*, B. & C., on *Lupinus argenteus*; Bozeman, Mont.

*Uromyces Genistæ-tinctoriæ*, (P.), on *Trifolium*; Thompson Falls, Mont. *Lupinus argenteus*; Livingston, Mont.

This is the same as *U. Lupini*, Sacc., and is characterized by warty apiculate spores with fragile pedicels. *U. Lupini*, B. & C. has smooth spores and is very different. It is erroneously referred here by Dr. Winter in "Die Pilze," I, 146, on the authority of Thuemen, Myc. Univ. 842. The form on *Trifolium* has somewhat smaller spores but is not specifically distinct.

*Uromyces Psoraleæ*, Pk., on *Psoralea lanceolata*; Medora, Dak.

*Uromyces argophyllæ*, Seymour, in Ell. and Ev. N. Am. Fung. 1862.

Spots none; sori amphigenous, small, scattered, inconspicuous, obscured by the hairs of the leaf; teleutospores subglobose to oblong, broadest at, above or below the middle,  $17-25 \times 22-45 \mu$ ; epispore thin, of uniform thickness or slightly thickened and papillate at the apex; pedicel fragile. Differs from *U. Psoraleæ*, Pk. chiefly in longer and narrower spores and more deciduous pedicels.



On *Psoralea argophylla*; Valley City and Bismarck, Dak.

*Uromyces* sp. on *Glycyrrhiza lepidota*; Jamestown and Bismarck, Dak., Miles City and Livingston, Mont. This was called *U. Trifolii* by Dr. Winter (in litt.) and distributed under that name in Ell. & Ev. N. Am. Fung. 1876, but I have been unable to satisfy myself with the determination.

*Uromyces Viciae*, (P.) D By., on *Lathyrus*; Brainerd, Minn.; Valley City, Jamestown and Bismarck, Dak.

*Uromyces Rudbeckiae*, Arth. and Holw., on *Rudbeckia laciniata*; Fargo and Valley City, Dak., Livingston, Mont.

Exs., Fungi Europæi 3412.

*Uromyces Euphorbiae*, C. & P., on *Euphorbia marginata*; Miles City, Mont. *Euphorbia* sp.; Medora, Dak.

*Uromyces Polygoni*, (P.) Fckl., on *Polygonum aviculare*; Medora, Dak.

*Uromyces Eriogoni*, Ell. Hark., on *Eriogonum* sp.: II, Helena, Mont.; III, Medora, Dak.; II, III, Livingston, Mont.

Exs.: Ell. Ev. N. Am. Fung. 1871.

*Uromyces Junci*, (S.) Tul., on *Juncus*; Bozeman, Mont.

*Uromyces Scirpi*, Burrill, on *Eleocharis*; Jamestown, Dak.

*Uromyces acuminatus*, Arth., on *Spartina cynosuroides*; Valley City and Bismarck, Dak. *Spartina gracilis*; Medora, Dak.

*Uromyces Alopecuri*, n. sp.

II. Sori epiphyllous, small, scattered, inconspicuous, mostly covered by the epidermis; spores subglobose to elliptical; episporium rather thick, warty; size,  $12-20 \times 15-24\mu$ .

III. Sori epiphyllous, small, blackish, covered by the epidermis; spores obovate to elliptical, broadly rounded or truncate at the apex,  $17-23 \times 23-32\mu$ ; episporium of nearly equal thickness throughout; pedicel persistent, as long as the spore or shorter.

On *Alopecurus geniculatus*, var. *aristatus*; Brainerd, Minn.

*Puccinia Anemones-Virginianae*, S., on *Anemone patens*, var. *Nuttalliana*; Livingston, Mont. *Anemone cylindrica*; Valley City, Dak.

*Puccinia mirabilissima*, Pk., on *Berberis repens*: II, Helena, Mont.; II, III, Thompson Falls, Mont.

*Puccinia Violae*, DC., on *Viola*; Valley City and Jamestown, Dak.

*Puccinia Arenariae*, (Schum.) Wint., on *Cerastium arvense*; Livingston, Mont.

*Puccinia Malvastri*, Pk., on *Malvastrum coccineum*: II, III, Al-

mont, Dak. ; III, Jamestown and Bismarek, Dak. ; Billings and Helena, Mont.

Exs. : Ell. and Ev. N. Am. Fung. 1850 ; Fungi Europæi 3515.

*Puccinia Petalostemonis*, Farl., on *Petalostemon violacens* : II, III, Jamestown, Dak. ; III, Valley City and Bismarek, Dak.

Exs. : Ell. and Ev. N. Am. Fung. 1844.

*Puccinia Amorphæ*, M. A. Curtis, on *Amorpha canescens* ; Brainerd and Lake Minnetonka, Minn., Bismarek, Dak. *Amorpha fruticosa* ; Valley City, Dak.

*Puccinia Pruni-spinosæ*, P., on *Prunus* (*Americana*?) ; Valley City, Dak.

*Puccinia Epilobii*, DC., on *Epilobium paniculatum* ; Bozeman, Helena and Thompson Falls, Mont.

Exs. : Ell. and N. Am. Fung. 1846.

*Puccinia Pimpinellæ*, Lk., on *Osmorrhiza brevistylis* ; Bozeman, Mont.

*Puccinia Jonesii*, Pk., on *Cymopterus bipinnatus* ; Livingston, Mont.

*Puccinia Galiorum*, Lk., on *Galium boreale* ; Valley City and Jamestown, Dak. ; Helena, Mont.

This is apparently the form called *P. rubefaciens*, Johanson ; see Lagerheim in Hedw. 1889, p. 106, fig. 5.

The sori are elliptical or oblong, large, dark, convex. Those commonly seen on *Galium concinnum* are punctiform ; on *G. Aparine*, squarish and usually remaining covered by the epidermis. The uredospores have been rarely if ever found in the United States and the æcidia are rarely if ever seen except on *G. Aparine*. The host name *G. triflorum* in ILLINOIS UREDINEÆ, p. 181, is an error for *G. Aparine*.

*Puccinia Kuhniae*, S., on *Kuhnia eupatorioides* ; Valley City and Bismarek, Dak.

*Puccinia Asteris*, Duby, on *Aster conspicuus* ; Helena, Mont. *Aster* sp. ; Fargo, Dak.

*Puccinia Grindeliæ*, Pk., on *Grindelia squarrosa* ; Livingston and Helena, Mont. Exs. : Fungi Europæi 3513.

*Puccinia Helianthi*, S., on *Helianthus annuus* ; Miles City, Mont. *Helianthus*, sp. ; Lake Minnetonka, Minn. Fargo, Valley City, Jamestown, Bismarek, and Medora, Dak., Billings and Miles City, Mont.

*Puccinia Tanacetii*, DC., *Artemisia dracunculoides* : II, III, Me-

dora, Dak. ; III, Bismarck, Dak., Livingston and Bozeman, Mont. *Artemisia Ludoviciana*, Jamestown, Dak.

Exs. : Ell. and Ev. N. Am. Fung. 1848.

*Puccinia Xanthii*, S., on *Xanthium Canadense*; St. Paul, Minn., Bismarck and Medora, Dak., Miles City, Mont. *Ambrosia psilostachya*; Valley City and Medora, Dak., Billings, Mont.

Exs. : Ell. and Ev. N. Am. Fung. 1853.

*Puccinia variolans*, Hark., on *Actinella acaulis*; Livingston, Mont.

*Puccinia Balsamorrhizæ*, Pk., on *Balsamorhiza sagittata*; Thompson Falls, Mont.

*Puccinia cladophila*, Pk., on *Stephanomeria minor*; Livingston, Mont. Differs slightly from the original specimen.

Also collected in Washington Terr., Sept., 1883, by Suksdorf; Spokane Falls, Sept. 24, 1880, Watson; on *Stephanomeria runcinata*; foot hills of Santa Rita Mountains, Ariz., June 1, 1884, Pringle. Exs. : Ell. and Ev. N. Am. Fung. 1839.

*Puccinia flosculosorum*, (A. & S.) Roehl., on *Cnicus*; Fargo, Dak., Billings, Mont. *Hieracium*; Fargo and Bismarck, Dak., Billings and Thompson Falls, Mont. *Taraxacum*; II, Fargo, Dak.

*Puccinia Menthæ*, P., on *Mentha* sp.; II, III, Brainerd and Lake Minnetonka, Minn. *Monarda fistulosa*, Jamestown, Dak., Livingston, Bozeman and Helena, Mont.

*Puccinia plumbaria*, Pk., on *Gilia* sp.; Bozeman, Mont.

*Puccinia Convolvuli*, Cast., on *Calystegia sepium*: II, III, Fargo; III, Valley City, Dak.

*Puccinia Gentianæ*, (Strauss) Lk., on *Gentiana Oregana*; Helena, Mont. *Gentiana* sp.; Jamestown, Dak.

*Puccinia Polygoni-amphibii*, P., on *Polygonum amphibium* or allied form; II, III, Brainerd and Lake Minnetonka, Minn., Bozeman, Mont.

*Puccinia angustata*, Pk., on *Scirpus Eriophorum*; Brainerd and Lake Minnetonka, Minn.

*Puccinia Caricis*, (Schum.) Reb., on *Carex*; Bismarck, Dak., Helena, Mont.

*Puccinia Phragmitis*, (Schum.) Körn., on *Spartina cynosuroides*; Valley City and Bismarck, Dak. In the specimens gathered at Valley City the spores are often acuminate.

*Puccinia Stipæ*, Arth., on *Stipa viridis*; Southheart, Dak. *Stipa viridis* (?); Jamestown, Dak., Helena, Mont.

*Puccinia vexans*, Farl., on *Bouteloua racemosa*; Valley City and Jamestown, Dak.

*Puccinia graminis*, P., on *Bouteloua oligostachya* (?); Jamestown, Dak. *Ammophila longifolia*; Jamestown, Bismarck and Sweet Briar, Dak. Wheat; Fargo, Dak., scarce. Oats: II, Billings, Mont.; III, Jamestown, Dak. *Hordeum jubatum*; Lake Minnetonka, Minn.

*Puccinia Rubigo-vera*, (DC.), on Wheat; Fargo, Valley City and Jamestown, Dak. *Agropyrum*; Bismarck, Dak., Thompson Falls, Mont. *Hordeum jubatum*; Fargo and Valley City, Dak. *Elymus Canadensis*; Bismarck, Dak. In some cases these specimens have the ordinary paraphyses with the teleutospores and different capitate paraphyses with the uredospores. *Elymus*; Fargo and Jamestown, Dak., Livingston, Mont. In the Livingston specimens, the teleutospores have apical points, suggesting *P. coronata*, Cda.; Specimens on an unknown grass from Thompson Falls, Mont., resemble *P. coronata*, but have paraphyses like *P. Rubigo-vera*.

*P. coronata*, Cda., on Oats; Fargo, Jamestown, Bismarck, Dak.

*Puccinia tomipara*, Trelease, on *Bromus ciliatus*; Detroit, Minn. Exs.: Ell. and Ev. N. Am. Fung. 1842.

*Puccinia emaculata*, S., on *Panicum capillare*; Lake Minnetonka, Minn.

*Puccinia Andropogi*, S., on *Andropogon furcatus*; Brainerd, Minn., Jamestown and Bismarck, Dak. *Andropogon scoparius*; Jamestown and Bismarck, Dak.

*Phragmidium Fragariae*, (DC.), on *Potentilla Norvegica*; III, Helena, Mont. *Potentilla gracilis*, var. *rigida*; III, Bozeman, Mont. *Potentilla* (near *P. gracilis*); III, Helena, Mont.

*Phragmidium Potentillae*, (P.), on *Potentilla Pennsylvanica*; III, Helena, Mont. This species is characterized by dark colored firm spores and firm pedicels.

*Phragmidium mucronatum*, (P.) Lk., on *Rosa* sp.: II, III, Brainerd, Minn., Fargo, Dak., Miles City, Livingston and Bozeman, Mont.; III, Detroit, Minn., Jamestown, Dak., Helena and Thompson Falls, Mont.

*Phragmidium Rubi-idaei*, (P.) Wint., on *Rubus strigosus*; Helena, Mont. *Rubus Nutkanus*; Helena and Thompson Falls, Mont.

*Coleosporium Sonchi-arvensis*, (P.) Lev., on *Aster macrophyllus*; II, III, Brainerd, Minn. *Aster conspicuus*; III, Helena, Mont. *Aster* sps.; II, Brainerd, Minn., Fargo and Valley City, Dak., Bozeman



Mont. ; II, III, Thompson Falls, Mont. *Solidago* : II, Medora, Dak., Miles City and Helena, Mont. ; II, III, Detroit, Minn.

*Melampsora Lini*, Tul., on *Linum* sp. ; II, III, Livingston, Mont.

*Melampsora Epilobii*, (P.) Fekl., on *Epilobium angustifolium* ; II, III, Brainerd, Minn., Helena and Thompson Falls, Mont., Kootenai and Sand Point, Idaho. *Epilobium coloratum* : II, Bozeman, Mont., II, III ; Livingston and Helena, Mont.

*Melampsora populina*, Lev., on *Populus monilifera* ; II, III, Jamestown and Bismarck, Dak. *Populus balsamifera* ; II, III, Helena, Mont. *Populus tremuloides* ; II, III, Livingston, Mont. Very injurious to young cottonwood trees planted on tree claims.

*Melampsora salicina*, Lev., on *Salix* sps. : II, Detroit, Minn., Fargo and Bismarck, Dak., Billings, Livingston and Helena, Mont. ; II, III, Bozeman, Mont.

*Cronartium asclepiadeum*, (Willd.) Fr., var. *Thesii*, B., on *Comandra umbellata* ; II, III, Livingston, Mont.

*Cronartium asclepiadeum*, (Willd.) Fr., var. *Quercuum*, B & C., on *Quercus coccinea* ; Brainerd, Minn. Exs. : Ell. & Ev. N. Am. Fung. 1881 ; Fungi Europæi 3418.

*Æcidium Euphorbiæ*, P., on *Euphorbia* sp. ; Miles City, Mont.

*Roestelia lacerata*, (Sow.) Fr., on *Cratægus* sp. ; Bozeman, Mont. *Amelanchier alnifolia* ; Livingston and Bozeman, Mont.

#### USTILAGINEÆ.

*Ustilago subinclusa*, Körn., on *Carex trichocarpa*, var. *Deweyi* ; Bismarck, Dak. Exs. : Ell. & Ev. N. Am. Fung. 1889.

*Ustilago segetum*, (Bull.) Ditm., on Oats ; Sand Point, Idaho ; Billings, Mont.

*Ustilago Rabenhorstiana*, Kühn, on *Panicum glabrum* ; Minneapolis.

*Ustilago Syntherismæ*, S., on *Cenchrus tribuloides* ; St. Paul.

*Sorosporium Ellisii*, Wint., var. *occidentalis*, Seymour, on *Andropogon furcatus* ; Bismarck, Dak.

In the original specimens described by Dr. Winter the undeveloped flowers are infested before the expansion of the inflorescence. In these specimens, individual flowers of the fully expanded inflorescence are affected. The spores measure 9–10  $\mu$ . This has been referred to *Ustilago Andropogonis*, Kell. and Swingle (Journ. Myc. Vol. v, p. 12, pl. I, figs. 12–26) but the measurements of the spores are less than those of the Kansas specimens as there stated, also



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Seymour.]

191

[Feb. 6,

somewhat less than those given by Dr. Winter (Torr. Bull. x, 7). The spores certainly fall apart very easily, but the glomerules may be seen by careful examination. This was positively stated by Dr. Winter (in litt. July 9, 1885) to be his *U. Ellisii*. I alone am responsible for the varietal name.

*Entyloma Menispermii*, Farl. and Trelease, on *Menispermum Canadense*; Fargo and Valley City, Dak.

*Entyloma Compositarum*, Farl., *Erigeron Philadelphicum*; Valley City, Dak.

*Entyloma Physalidis*, (Kalch. & Cke.) Wint., on *Solanum triflorum*; Bismarck, Dak.

Exs.: Ell. & Ev. N. Am. Fung. 1491b after 1900.

The Secretary called attention to peculiar calcareous formations from the Bermudas known as "Fossil Palms."

SALEM PRESS, July, 1889.